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2 April 1980

USSR Report

ELECTRONICS AND ELECTRICAL ENGINEERING

(FOUO 6/80)



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USSR REPORT
ELECTRONICS AND ELECTRICAL ENGINEERING
(FOUO 6/80)

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PUBLICATIONS

GUIDE TO SEMICONDUCTOR DIODES

Moscow SPRAVOCHNIK PO POLUPROVODNIKOVYM DIODAM (Guide to Semiconductor Diodes) in Russian 1979 signed to press 5 Oct 79 pp 2, 431-432

[Annotation and table of contents from book by Boris Aleksandrovich Borodin, Vyacheslav Mikhaylovich Dronevich, Rimma Vasil'yevna Yegorova, Artem Stenonovich Kozyrev and Iosif Fedorovich Nikolayevskiy, editors, Izdatel'stvo Svyaz', 47,000 copies, 432 pages]

[Text] This volume examines a wide variety of commercially-manufactured diodes, encompassing all areas of diode utilization. Volt-ampere characteristics are given for all types of diodes, as well as parameters, their physical significance, as well as recommendations on utilization.

This manual is intended for engineer-technician personnel and can be useful to undergraduates and graduate students at radio engineering schools.

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PUBLICATIONS

HIGH-REGULARITY RADIO-FREQUENCY CABLE

Moscow RADIOCHASTOTNYYE KABELI VYSOKOY REGULYARNOSTI (High-Regularity Radio-Frequency Cables) in Russian 1979 signed to press 29 Jun 79 pp 2, 104

[Annotation and table of contents from book by Nelli Ivanovna Dorezyuk and Mikhail Fedorovich Popov, Izdatel'stvo Svyaz', 2,700 copies, 104 pages]

[Text] This book discusses theory and practice of engineer calculation of coaxial cables with random and periodic irregularities.

The authors present the principal methods of mathematical description of processes in an irregular cable and determination of frequency characteristics in relation to parameters of irregularities in the cable. The authors present the interrelationship between input and output characteristics and examine the basic techniques of designing high-regularity cables, the specific features of their manufacturing process and methods of evaluating frequency characteristics.

This book is intended for engineer-technician personnel employed in development, design and utilization of high-regularity coaxial cables.

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PUBLICATIONS

UDC 621.382.8

ION ETCHING OF MICROSTRUCTURES

Moscow IONNOYE TRAVLENIYE MIKROSTRUKTUR [Ion Etching of Microstructures] in Russian 1979 signed to press 23 Mar 79 pp 2, 103

[Annotation and table of contents from book by Boris Stepanovich Danilin and Valeriy Yurevich Kireyev, Sovetskoye radio, 8,000 copies, 104 pages]

[Text] The authors give the classification of the etching processes for materials used in manufacturing microelectronic devices and examine the mechanisms of ion sputtering and the dependence of the sputtering factor and the rate of ion etching on the physical, chemical, and technological factors. They analyze the special characteristics of the modes of evacuation, image transport, selection and processing of masking materials, as well as the radiation defects occurring during ion etching. Various systems of ion etching, methods and devices for controlling this process and the prospects of its use in the production of microelectronic products are examined. Practical recommendations are given for the selection and calculation of technological parameters of ion etching for various materials and geometry of sputtering devices for its realization.

The book is intended for technologists of the electronic industry and developers of new types of equipment, as well as for undergraduate and graduate students of higher educational institutions.

Figures -- 45, tables -- 12, bibliography -- 158 items.

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PUBLICATIONS

RADIATION EFFECTS IN SEMICONDUCTORS

Novosibirsk RADIATIONNYE EFFEKTY V POLUPROVODNIKAKH (Radiation Effects in Semiconductors) in Russian 1979 signed to press 31 May 79 pp 2, 221

[Annotation and table of contents from book by Prof L. S. Smirnov, editor, Izdatel'stvo Nauka, 1,550 copies, 224 pages]

[Text] This volume contains original and survey articles on current problems of radiation physics of semiconductors. The theoretical articles examine problems of formation, accumulation and annealing of various multiple-vacancy defects, as well as problems connected with computer modeling of structural imperfections. The experimental studies deal with features of formation of defects in the surface layer of a semiconductor and photoluminescence of irradiated crystals. The authors stress the role of thermally activated rearrangements both of radiation defects and defect-impurity complexes present in the original crystals.

This volume is intended for scientific workers and engineers employed in the area of radiation physics of semiconductors, defects of structure or inhomogeneous systems.

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PUBLICATIONS

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RECEPTION OF SIGNALS WITH EVALUATION OF THEIR QUALITY

Moscow PRIYEM SIGNALOV S OTSENKOY IKH KACHESTVA [Reception of Signals with Evaluation of Their Quality] in Russian 1979 signed to press 19 Apr 79 pp 2, 236-237

[Annotation and table of contents from a book by Vyacheslav Petrovich Shuvalov, Izdatel'stvo Svyaz', 4,600 copies, 240 pages]

[Text] The author examines the methods of evaluating the quality of signals and gives recommendations for their use in systems for transmitting discrete messages for increasing their correctness. Along with mathematical analysis of the methods for evaluating quality of signals, he treats the problems of technical realization of detectors of signal quality and gives results of experimental studies characterizing the effectiveness of their use.

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PUBLICATIONS

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SCREENING OF MICROWAVE STRUCTURES

Moscow EKRANIROVANIYE SVCH KONSTRUKTSIY [Screening of Microwave Structures] in Russian 1979 signed to press 26 Feb 79 pp 2, 134-135

[Annotation and table of contents from book by Yevgeniy Aleksandrovich Vorob'yev, Sovetskoye radio, 10,000 copies, 135 pages]

[Text] The author examines the problems of electromagnetic compatibility and electric sealing of standard microwave devices. He gives detailed explanations of the method of calculation and practical techniques of designing microwave screens, simple and complex electrically sealed waveguide microwave devices and mirror antennas with a lowered level of internal noise and with a high mutual isolation.

The book is intended for developers, designers, and technologists working in the area of microwave techniques, as well as for students of higher educational institutions.

Tables -- 4, figures -- 51, bibliography -- 46 items.

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PUBLICATIONS

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SUPERLONG-DISTANCE PROPAGATION OF SHORT RADIO WAVES

Moscow SVERKHDAL'NEYE RASPROSTRANENIYE KOROTKIKH RADIOVOLN [Superlong-Distance Propagation of Short Radio Waves] in Russian 1979 signed to press 26 Mar 79 pp 2, 3-4

[Annotation and table of contents from a book by Aleksandr Viktorovich Gurevich and Yelena Yevgen'yevna Tsedilina, Nauka, 3,650 copies, 248 pages]

[Text] This book is a systematic presentation of the theory of long-distance propagation of short radio waves. Special attention is given to the investigation of global regularities of the propagation of radio waves and development of detailed methods for calculating radio paths. The problems of the capture of radio waves radiated from the earth in an interlayer waveguide channel and exit from the channel with consideration from the effects of inhomogeneities artificially created in the ionosphere when it is perturbed by high-power radio waves are discussed in details.

Tables -- 17, bibliography -- 232 items, figures -- 97.

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